

REMARKS

By this Amendment the specification has been corrected on pages 7 and 9, and claims 1-24 and 27 have been replaced by new claims 28-36 which more concisely define the invention.

In the outstanding Office Action the examiner has rejected claims 1, 3-7 and 10 under 35 U.S.C. 102(b) as being anticipated by Mevel, he has rejected claims 8, 9, 11-13 and 21 under 35 U.S.C. 103(a) as being unpatentable over Mevel, he has rejected claims 14-20 under 35 U.S.C. 103(a) as being unpatentable over Mevel in view of Berger, he has rejected claims 19, 20 and 22 under 35 U.S.C. 103(a) as being unpatentable over Mevel in view of Berger and Kaminstein et al., he has rejected claim 23 under 35 U.S.C. 103(a) as being unpatentable over Mevel in view of Berger, Kaminstein et al. and Lim et al., he has rejected claim 24 under 35 U.S.C. 103(a) as being unpatentable over Mevel in view of Beythein, and he has rejected claim 27 under U.S.C. 103(a) as being unpatentable over Mevel in view of Lim et al.

The inventors assert that these rejections must be withdrawn.

Mevel discloses a fire extinguishing composition which includes components that are similar to those of the present invention. However, a person of ordinary skill in the art will appreciate that while some of the ingredients may overlap, their interaction in a chemical sense provides retardants of substantially different characteristics and operating abilities.

As amended, the fire retardant provided in the present invention has a restricted pH value between 6.5 to 7.0 to ensure that it remains neutral or at most slightly acidic.

As taught throughout Mevel, there is the ongoing necessity of an alkali pH which of course as a person of ordinary skill in the art would have realized, by the teaching provided for by Mevel, this belongs to the fact that potassium acetate is an alkali salt with a pH of 9.25.

As taught by Mevel, the potassium acetate is based on the reaction between the acetic acid ($pK_a = 4.76$) and a mixture of potassium carbonate and hydroxide ($pK_b = -2.5$).

Again, as a person of ordinary skill in the art will appreciate, the chemical reaction will automatically give a result of a potassium acetate aqueous solution with an alkali pH. Dissolved in water the potassium acetate aqueous solution mixture will give an alkali basic salt aqueous composition with a pH between 7.5 and 8.5.

The pH value will depend on the amount of water added to the aqueous solution but the potassium acetate aqueous solution mixture cannot generate an acid salt. All added chemical compounds refer to alkaline compounds.

In contrast to the disclosures and teaching in Mevel, the applicant, as now more clearly defined in the amended claims, has provided a fire retardant, protein-free composition with a neutral and/or slight acidic

composition with a pH between 6.5 and 7.0, achieved by adding a larger quantity of an acidic concentrate to the aqueous solution.

As a person of ordinary skill in the art will appreciate, there is a big difference between an acid salt composition and a basic or alkali salt composition.

An acid salt is a donor of hydrogen ions where a basic or alkali salt is a receiver of hydrogen ions. A donor of hydrogen ions is a generator of water in chemical reactions with hydroxide compounds. It reduces the pH of any alkali basic compound or even neutralizes the pH depending on the amount of hydrogen ions added to the receiving compound.

Mevel continually places all focus on the potassium acetate (a basic salt, pH= 9.25) and all the available benefits of it in respect of cooling and extinguishing a fire at this alkaline pH. Mevel makes it clear his retardant does not work once that alkali environment is lost. Still even further, Mevel claims and teaches to have discovered a possibility to reduce the amount of potassium acetate by adding tetra potassium phyrophosphate. Nonetheless, Mevel at the same time, necessitates and claims that the concentration of potassium acetate must be at least 300g per litre to achieve the required fire fighting functionality.

The acetate component provided for in this composition is not even responsible for adjusting the pH and for the most part the alkali metal compound which in some instances can be presented as the acetate is

simply there to reduce or eliminate mould and/or fungus attack in the finished composition thereby increasing the shelf life of the product.

As stated in the original and amended claims, it is Items B and/or C respectively which are responsible for ensuring that the pH value remains between 6.5 to 7 to maintain a neutral and/or slightly acidic aqueous salt solution mixture.

Mevel makes it clear that such low levels of acetate that is anticipated in the compositions provided for in this invention would be too poor or of a quantity too low to give the required fire fighting functionality characterized by Mevel's fire retardant.

Hence, to reiterate, Mevel has based his invention and the provided fire retardant composition on potassium acetate and the fire extinguishing property benefits related to the listed basic or alkali salt. Regarding the proposed combination with tetra potassium pyrophosphate (a drying agent), its usage as taught is said to reduce the required amount of potassium acetate added to the aqueous solution. The tetra potassium pyrophosphate in this invention is added for its ability to improve the thermal energy absorption by binding water but also to improve bonding.

As the examiner will appreciate, in chemistry it is essential to understand what the different chemicals mixed together finally generate, rather than putting focus on a few chemicals of a whole mixture. Therefore, a new chemical added to a chemical composition might change the final result compared with the one before. For example, it is mostly

the same chemicals used to make pancakes as it is to make bread, but you cannot make a pancake from a piece of bread. Hence, the quantity, as well as further addition of other chemicals and the intended combinations thereof to produce a certain type of composition, is of most importance.

The applicant does not deny that Mevel's composition has some similarities with respect to some of the ingredients or components that make up the formulations for the respective fire retardants. Nonetheless, in reality as a person of ordinary skill in the art will appreciate, there are very big differences between a desire to produce a basic or alkali salt composition and an acid salt composition in terms of chemical reactions. The addition of the acidic concentrate which is responsible for adjusting of the pH in combination with the highly concentrated alkali, makes a big difference especially when the salt generated ensures a neutral or slight acidic aqueous salt solution as opposed to a basic or alkali salt created through an acetate.

Still further, the remaining citations of Berger, Kaminstein et al., Lim et al. and Beythein in no way assist a person of ordinary skill in the art to use Mevel's description and then combine them to anticipate the invention. In fact, the contrary is the case.

As amended, the presented claims define a fire retardant composition that would be classified as harmless as it is protein free and operates at a neutral or very slightly acidic pH range between 6.5 to 7.

There is no requirement to include ingredients such as ammonium phosphate or urea and hence with the absence of any protein, removes any allergic reactions potentially on the skin of users and therefore it is fair to classify this fire retardant as being harmless.

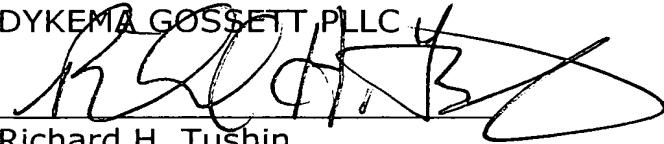
This unique harmless composition now defined in the amended claims with a neutral and/or slightly acidic characteristic is able to absorb the heat from the article being treated from flame attack, and therefore able to cool the area around the flame, and at the same time being able to consume any free oxygen which may be fuelling the fire. Hence, the composition almost has a dual-type simultaneous action working on the fire, not only to cool the product making it less susceptible to further ignition by fire, but also to scavenge any oxygen in the vicinity of the flames which would fuel such a flame.

It is the unique composition of claim 1 and the ingredients included therein presented at a neutral and/or slightly acidic condition, that it is able to provide such characteristics.

Therefore, based on the above and the attached amended claims, the examiner's rejections should be withdrawn and the application allowed.

A supplemental page 21 for this application containing a corrected abstract of the disclosure is submitted herewith.

Respectfully submitted,

By: 
Richard H. Tushin
Registration No. 27,297
Franklin Square, Third Floor West
1300 I Street, N.W.
Washington, DC 20005-3353
(202) 906-8680